

## NEW FORD PROCESS GIVES CHEAPER IRON

Single Heating Method Also  
Turns Out a Finer and  
Stronger Product.

### DETAILS KEPT SECRET

DETROIT, Oct. 16.—The announcement of the Ford Motor Company officials that gray and malleable iron of the highest grade will be made at their plant direct from the ore heralds the accomplishment of that which hitherto has been regarded as impossible. Not only has this fine gray and malleable iron been produced directly from the initial heat of the blast furnace, but the iron made in this manner, according to the Ford engineers, is of finer quality and of more strength than the old iron made from the blends of the blast furnace products. Gray and malleable iron with a test of 28,000 to 30,000 pounds to the square inch is regarded as good iron. That which has been produced by the Ford organization has a test of 33,000 pounds.

Heretofore the process of producing finished gray or malleable iron was surrounded with uncertainty and complications, which is shown by the blast furnace yards being stocked with great quantities of different kinds of iron—the varied product of that furnace. The yards of the foundries also show the accumulation of large quantities of different kinds of iron, which must be selected from to obtain somewhat of a given product in finished gray iron or malleable castings.

**Ford Starts Experiments.**  
Several months ago Mr. Ford, together with some of his manufacturing organization, was visiting a few of the large iron and steel industries of the East when the question arose why it was necessary to reheat and remelt the products of the blast furnace, the first conversion of iron ore.

"Is it not possible to get the kind of iron you want directly without the waste of that initial heat?" was Mr. Ford's inquiry.

Thereupon he was informed that it "couldn't be done."

Mr. Ford smiled and, turning to his engineer, said: "Because it has not been done is all the more reason why we should try. Go to it!"

To get all these elements reduced with the initial heat and at the same time retain the desirable properties of the iron was the problem given to the Ford organization.

The organization went to work quietly here in Detroit. The process was more than a laboratory affair. Sixteen tons of iron was used in the initial trials.

By and by the results showed the same as when Mr. Ford was informed that a light car would not be a success, that the steel of the Ford automobile was not practicable. "It can't be done," was said to both these matters.

When the success of the continued experiments was announced to Mr. Ford he smiled again. He wasn't at all surprised that it "had been done" means.

An order of some 250 tons of iron was used in the initial trials. The Ford Motor Company may be pleased when it is understood that this plant uses approximately 700 tons of gray and malleable iron daily. In the blast furnace the iron is melted and then the steel is made. The steel is then melted and then the iron is melted. From this come gray iron, malleable iron and steel products.

**Second Melting Omitted.**  
The only way to get a uniform product before the Ford discovery was to sort out the various kinds of iron that the blast furnace produced and then blend them by remelting, this calling for two heatings of the iron, the first being when it came from the ore, and the second in the cupola. The Ford process omits the second melting entirely.

Gray iron is used in parts where flexibility is not required, for cylinders and machinery construction in general. Malleable iron is used where a light degree of flexibility is required and where strength, flexibility and hardness are necessary. It has been put down as impossible to put blast furnace iron into finished gray iron or finished malleable direct. It is practical in steel making when the Bessemer or duplex process is used.

The Ford Motor Company has evolved the method of putting this finished blast furnace iron into fine gray or malleable iron, as the case may be. It has brought into play most of the processes now used in steel making in such a way that economy can be effected so that a saving is obtained over the present cupola practice of remelting.

The elements that have been hard to control heretofore with any degree of economy, carbon, manganese, silicon, phosphorus and sulphur, are eliminated or reduced in a few minutes to the point desired or can be brought up to that point, as the case may be, at a very minimum expenditure of time and energy. From the time the iron ore is put into the blast furnace, the finished malleable iron is passed only one heat is used.

The Ford company has no immediate intention to reveal the full details of the new process.

**BEATEN AND ROBBED OF \$307.**  
Treasurer of Art Glass Firm Held Up in Daylight.

A daylight robbery occurred shortly before noon yesterday within a block of Police Headquarters. Harry Bretter, treasurer of the Ideal Art Glass Company, was knocked unconscious and robbed of \$307.76 in the hallway of the concern at 125-7 Baxter street.

Bretter had drawn the money from a bank to complete the payroll. The hallway of the building was dark when he returned, but he gave no thought to four men who he saw coming down the stairs. Suddenly one of the men struck him over the head with a black stick and when he regained consciousness the men had disappeared with the money.

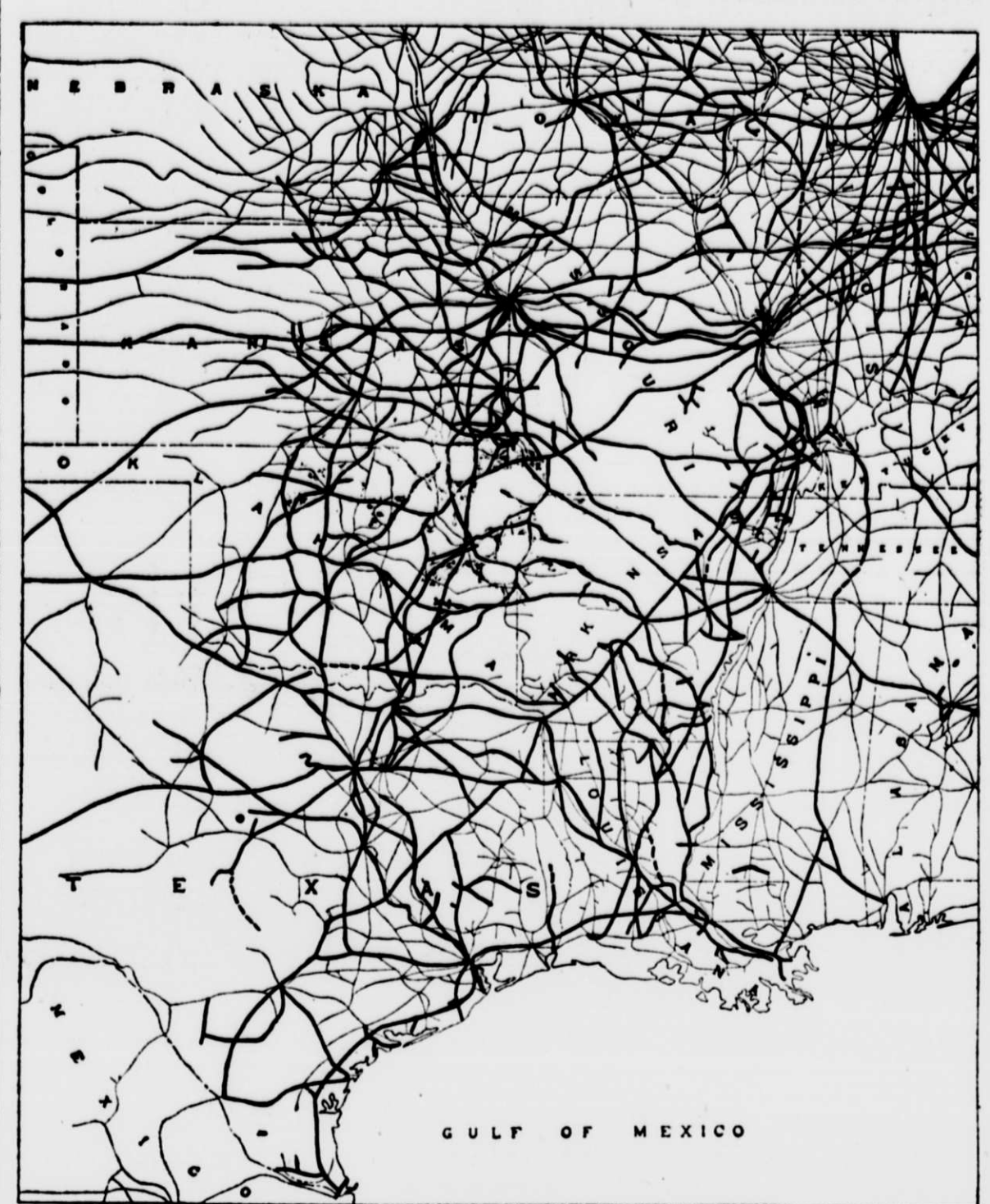
No description of the robbers could be obtained from Bretter because of the darkness of the hallway.

**Queens Bar Honors Dayton.**  
James A. Dayton, Commissioner of Public Works of Queens, was elected president of the Queens County Bar Association yesterday. He is a Republican and lives in Bayshore. His mother is Mrs. Mary W. Dayton, president of the W. C. T. U. of Queens and Nassau counties. He succeeds George B. Hamilton, who was elected last year.

Other officers elected are William P. Hendrickson of Jamaica, vice-president; Rodman Richardson of Flushing, secretary; and Daniel Rathbarger of Flushing, treasurer. Managers, Clinton T. Roe, chairman; Eugene N. L. Young, William Rasquin, Jr., H. P. Williams, Joseph J. Tully, Dennis O'Leary and George B. Hamilton, Abraham, Frederick Rauber of College Point.

**Aviator Killed in Looping.**  
BUDGARD AVIATOR, Oct. 16.—Francisco Buhrman, an aviator, was killed here today while attempting to loop the loop.

## RECEIVERS NOW HOLD EIGHTY-TWO OF THIS COUNTRY'S RAILROADS



THE above map, which shows only 32 per cent. of the railroad mileage of the country, covering the Southwest and some additional territory, includes 66 per cent., or nearly 28,000 miles of a total of 42,000 miles of road that are in the hands of receivers. The only roads of any importance held by receivers that are not on the map are the Western Pacific, having 946 miles of track; the Colorado Midland, 338 miles; the Georgia and Florida, 350 miles; and the Algoma Central and Hudson Bay, 332 miles. A part of the Pere Marquette system is shown.

### Bankrupt Lines Have One-sixth of the Mileage of Great Systems.

#### LAWMAKERS ARE BLAMED

One-sixth of the mileage of the railroads in the United States is being operated by receivers, according to the *Railway Age Gazette*. Two-thirds of the lines in receivers' hands are in the Southwest. The *Gazette* believes that "pernicious State regulation" did much to bring about this condition.

"With the problem before bankers and railroad managers of restoring the bankrupt railroads to a condition of solvency," says the *Gazette*, "it becomes essential that the conditions which brought about bankruptcy should be studied and analyzed in a spirit of candor. A successful termination of the conditions which now exist can be arrived at only if the causes which brought about these receiverships are removed. It is believed that a study of the accompanying map will help in this analysis.

"The roads in the hands of receivers in the Southwest have been the victims of pernicious State regulation, but in other parts of the country they have been the victims of the financial policy of the Federal Government. The latter have two large a proportion of their capital securities in the form of bonds or fixed interest bearing notes. The Southwest States have indulged in railway regulation to a greater extent than any other three States in the Union. It is unlawful to double head a freight train in Texas so as to obtain the economies of heavier train loading.

**Only 'Sample' of Regulation.**  
"This is only one instance of State regulation, but it is mentioned as a sample of the length to which the Southwest States have gone in attempting to cripple the earning power of their railroads.

"A factor which has been much commented on in connection with the receiverships in the Southwest has been the refusal of the bankers to renew maturing obligations. In some instances this may have been due to enforced conservatism on the part of the bankers, but in other instances it is not true. Take the case of the Missouri Pacific. Kuhn, Loeb & Co. stood ready to give the strongest kind of financial support, but smallness of the earning power of the road necessitated so drastic a reduction in fixed charges that security holders could only be compelled to make the sacrifice through the medium of railway receivership.

"If the Southwest had been experiencing a long period of business depression, if there had been crop failures, if a city like Dallas had had a boom and then a crash, and if this had been characteristic of other cities throughout the region, if prices for agricultural products had been abnormally low, we might assign any one of these as a prime cause of the disproportionate railroad mileage in the hands of receivers in the Southwest; but no one of these conditions has existed. The receivers have been growing rich; real estate values in the cities have increased phenomenally; building has been going on in the Southwest even when the East was in a state of stagnation; prices for agricultural products have been high steadily, with the exception, of course, of cotton; the railroad business is the only business, barring lumber, that has gone from bad to worse in the Southwest.

"Too large a proportion of fixed charges has been an important factor in all of the Southwest receiverships. To induce bondholders to accept stock in payment for their claims it will be necessary to give this stock a fair prospect of earning a substantial return, 7 per cent. at least in average years, and a prospect of having very much more than this in prosperous years, so as to offset the certainty that it will be foregone profit in years of bad crops or a business depression. If you are to reduce the fixed charges by persuading part of the debtors of the company

to become owners with the business risks that ownership must assume, you have got to hold out prospects of business profits which are higher than would be the interest ordinarily demanded by a lender on security.

"All the unbroken optimism that is to be found in Oklahoma and Texas cannot persuade an investor that a Southwest-railroad company's securities look good unless there is some substantial assurance that the railroads as well as other forms of industry are to be allowed to participate in the prosperity of that country. Optimism, even enthusiasm, over the Southwest is justified, but it is obvious that the railroads have not heretofore got their share of the wealth which they have been such an important factor in creating.

#### Roads Held by Receivers.

The following is a list of the eighty-two roads now being operated by receivers. They have a total mileage of 41,988, and a total capitalization of \$2,418,062,178.

Road	Mileage	Capitalization
Algonquin, Montreal & West	100.00	300.00
Arkansas, La. & Gulf	120.00	1,200.00
Arkansas, Southeastern	500.00	500.00
Atlanta & Atlantic	1,000.00	1,000.00
Baltimore, Annapolis & W. & A.	50.00	50.00
Birmingham & Montgomery	100.00	100.00
Buffalo & Susquehanna	100.00	100.00
Chicago & North Western	1,000.00	1,000.00
Chicago & Eastern Illinois	1,000.00	1,000.00
Chicago & Rock Island	1,000.00	1,000.00
Chicago & St. Louis	1,000.00	1,000.00
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